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Section II (Remarks)**A. Summary of Amendments to the Claims**

Claim 1 has been amended to recite that the semi-insulating gallium nitride has “a resistivity greater than about $10^5 \Omega\text{-cm}$,” “a thickness of at least about 50 micrometers,” and “a diameter of at least about 25 millimeters.” The resistivity limitations were disclosed, for example, in original claims 18, 20, and 21, and in paragraph [0024] of the description; the thickness limitation was disclosed, for example, in original claim 11 and in paragraph [0046] of the description; and the diameter limitation was disclosed, for example, in paragraphs [0022] and [0045] of the description.

Additionally, withdrawn claims 42 and 114 have been amended to recite the above-referenced resistivity and dimensional limitations, consistent with amended claim 1. Such amendment to claims 42 and 114 is performed to include all of the limitations of claim 1 in method claims 42 and 114, in order to facilitate rejoinder of method claims 43-116 under MPEP section 821.04.

Claims 17, 19, 53, and 55 have been cancelled herewith.

No new matter within the meaning of 35 USC 132 has been introduced by the foregoing amendments.

B. Allowable Subject Matter

In the July 17, 2006 Final Office Action, the examiner stated that Cho discloses a donor concentration calculated to have “a resistivity of $2 \times 10^3 \text{ Ohm centimeters}$.” Office Action, paragraph 3 (page 2). Thereafter, the examiner stated that “[t]he claims would be allowable if the range of resistivity and dimensions are incorporate [sic – incorporated] in the independent claims.”

Consistent with the examiner’s direction, Applicants have amended claim 1 – the sole elected independent claim pending in the application – to recite a resistivity greater than about $10^5 \Omega\text{-cm}$, a thickness of at least about 50 micrometers, and a diameter of at least about 25 millimeters.

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Accordingly, claim 1, and all claims depending therefrom, are in form and condition for allowance.

C. Claim Rejections

In the July 17, 2006 Final Office Action, claims 1-41 were rejected under various reference grounds, including:

- A rejection of claims 1, 10, 11, 14-16, 22-28, 35, and 36 under 35 USC § 102(b) over U.S. Patent 6,407,409 to Cho et al. ("Cho"); and
- A rejection of claims 2-12, 17-21, 31-34, and 37-38 under 35 USC § 103(a) over Cho in view of Heitz, et al. "Excited States of Fe³⁺ in GaN," Physical Review B, vol. 55, no. 7, February 15, 1997, pp. 4382-4387 ("Heitz").

Such rejections are **inapposite to the pending claims as amended herein**, for at least the reason that neither Cho nor Heitz disclose any single crystal semi-insulating gallium nitride "having a resistivity greater than about 10⁵ Ω-cm." Such difference was expressly recognized by the examiner in the July 17, 2006 Office Action at paragraph 3 (page 2).

With the examiner having acknowledged the allowability of the claims if amended to recite the foregoing resistivity and dimensional limitations, and Applicants' corresponding amendment of claim 1, all claims 1-16, 18, and 20-41 are patentably distinguished over the cited prior art. Accordingly, with such amendment to independent claim 1, withdrawal of the rejections of claims 1-16, 18, and 20-41 under 35 U.S.C. §§ 102, 103 is respectfully requested.

D. Request for Rejoinder Under MPEP 821.04 of Non-Elected Method Claims 42-116

As stated in MPEP 821.04:

In order to be eligible for rejoinder, a claim to a nonelected invention must depend from or otherwise **require all the limitations of an allowable claim**. A withdrawn claim that does not require all the limitations of an allowable claim will not be rejoined. Furthermore, where restriction was required between a product and a process of making and/or using the product, and the product invention was elected and subsequently found allowable, all claims to a nonelected process invention must depend from or otherwise require all the limitations of an allowable claim for the claims directed to that process invention to be eligible for rejoinder

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Currently amended withdrawn independent method claims 42 and 114, and the claims depending therefrom, now include all of the limitations of allowable independent claim 1. Accordingly, Applicants request that the examiner reconsider the propriety of the restriction requirement imposed on September 29, 2004, and that claims 42-52, 54, and 56-116 be rejoined with claims 1-16, 18, and 20-41 pursuant to MPEP 821.04.

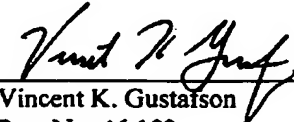
CONCLUSION

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Claims 1-16, 18, and 20-41 are in proper form and condition for allowance, and claims 42-52, 54, and 56-116 are in proper form to be rejoined with claims 1-16, 18, and 20-41. A Notice of Allowance is earnestly solicited for all claims 1-16, 18, 20-52, 54, and 56-116. If any issues remain outstanding, the Examiner is requested to contact the undersigned attorney at (919) 419-9350 to resolve the same.

Respectfully submitted,



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